

opened presented an irregular, dark, reddish-brown appearance with a slightly olive-green tint. This was found to be the surface of a continuous membrane lining the whole of the stomach. It varied in thickness, averaging one-twelfth of an inch, but being thickest over the rugæ. It was adherent to the mucous membrane, but was easily separated and peeled off, and then exhibited on its under surface the imprint of the markings of the mucous membrane. Except in thickness and in its dark red color it differed little from the exudation in the pharynx.

The rugæ of the mucous membrane were of a black-red hue and studded with a dark red punctiform injection. The mucous lining between the rugæ was of a much lighter color. The intestines were healthy.

Under the microscope the exudation from the stomach presented an irregular fibrillated appearance with numerous red blood-cells and leucocytes.

STUDIES ON THE FUNCTIONS OF THE STOMACH IN PHTHISIS.

F. SCHETTY (*Deutsch. Archiv*, Bd. xlv. 219) says that as all the investigations carried on have as yet failed to give us any specific against tuberculosis, we are obliged to combat the disease in some other way, *i. e.*, by strengthening the organism and making it as resistant as possible to the action of the poison. The dietetic and the climatic treatment are therefore to be considered, and of these the most important is the former, since the latter cannot so often be carried out. As the affection is essentially a wasting disease the dietetic treatment is greatly to be desired, but unfortunately often meets with the greatest obstacles in the form of gastric disturbances. The author quotes extensively from well-known writers regarding the digestive disturbances of phthisis, but says that no satisfactory explanation of the cause of this is offered. The fact that *gavage*, as practised by the French clinicians, is often of great advantage to the patient is an indication that in spite of the patient's dislike for food, there is no abnormality of the digestive capacity of the stomach. He cites the meagre investigations which have been conducted regarding the gastric function in phthisis, and then details the studies which he has made on twenty-five cases of the disease. He chooses both incipient and more advanced cases; those with but little fever, and those with marked pyrexia. He first examined the patient according to the method of Kahn and von Mering, *viz.*, in the morning, on an empty stomach, the patient received two hard-boiled eggs and one hundred to one hundred and fifty grammes of water. After an hour the gastric contents were carefully removed by aspiration with a soft tube, filtered, and examined. The examination consisted in determining: 1. The reaction. 2. The presence of lactic acid by the use of the carbolated-iron test. 3. The presence of free hydrochloric acid by the same reagent, as well as by Congo-paper, *vert brillant*, tropæolin, methyl-violet, and phloroglucin-vanillin (the last of which tests he considers the best). 4. The presence of acetic and butyric acids; tested by the odor. If it was determined that only inconsiderable quantities of lactic, acetic, and butyric acids were present, the amount of free hydrochloric acid was determined quantitatively by titration with one-tenth normal sodium solution. The peptic strength of fifteen cubic centimetres of the filtrate was

then tried on a piece of boiled egg albumen, one millimetre thick and six millimetres in diameter, and the time required for digestion determined.

Within two to three days a second examination was carried out, after the method of Leube; the patient receiving a mid-day meal of soup, beefsteak, bread, and water; and the contents of the stomach being removed after six hours, and tested in the way already described.

The results of his investigations were as follows:

1. The production of hydrochloric acid was in all the cases not diminished in the morning, and in some of them even increased. There was a normal production of acid both in the advanced cases and in those with morning fever.

2. The digestive power of the gastric contents was destroyed in no case; the length of time required in the digestion test was one to two hours, and corresponded to the normal condition.

3. The time required for digestion within the stomach in the afternoon and evening hours was not prolonged, and there existed consequently no motor insufficiency in the cases examined; for in all but three of the cases the stomach was empty after six hours, and in these there was no food remaining, but only some of the gastric secretion. The degree of advancement of the disease, or the elevation of the body-temperature, appeared to have no influence.

It seems certain, then, that the so-called gastric disturbances of many phthisical patients do not always depend on gastric catarrh and a diminution of the secretions. It is of importance, therefore, to make in every case possible an examination of the secretion, in order to be able to determine the most suitable therapy. Cases in which the secretion is found normal are often suitable subjects for *gavage*, and will be benefited by it.

THE RELATION OF BACTERIA TO THE DIARRHOEAL DISEASES OF INFANCY.

L. E. HOLT (*New York Medical Journal*, April 13, 1889) says that in a study of the effects of microorganisms upon the human body, and especially in diarrhoeal diseases, three factors must be kept in mind:

1. The nature of the microorganisms. 2. The dose or numbers in which they enter the body. 3. The vulnerability of the patient.

He then takes up the consideration of the normal conditions present in infants on milk diet, concluding:

1. That the small intestine is acid throughout the upper two-thirds of its course.

2. The source of the acid is the decomposition of the milk-sugar which is present here, though not in large amount.

3. There is no decomposition of casein.

4. All the casein and the greater part of the milk-sugar appear to be absorbed soon after they enter the intestine.

5. Oxygen is absent, with the possible exception of a very small amount next the mucous membrane.

6. But two varieties of bacteria have been constantly found: The *Bacterium lactis aerogenes*, which decomposes milk-sugar principally into lactic acid, and which is found chiefly in the upper part of the small intestine; and the *Bacterium coli commune*, occurring in great numbers in the colon and stools.